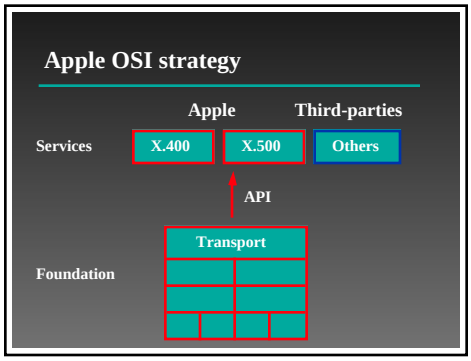
MacX.400 Product Family

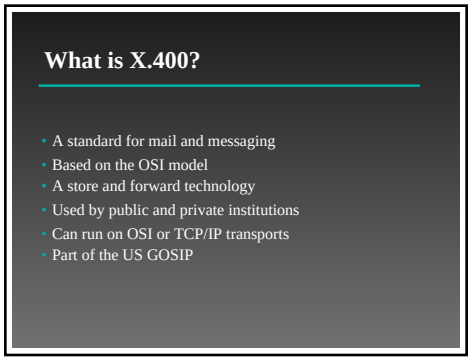


Apple OSI strategy

- Apple implements the OSI Transport (layers 1 to 4, the foundation)
- Apple will also implement key OSI services (X.400 mail and messaging as wellas X.500 directory services)
- Apple publishes Application Programming Interfaces (APIs) so that developers can create great applications. APIs are published today at the Transport level (based on the XTI standard) and at the X.400 level
- Other OSI services (FTAM, VT,...) are left to third-parties. Third poarties can use the OSI Transport developped by Apple as a foundation.

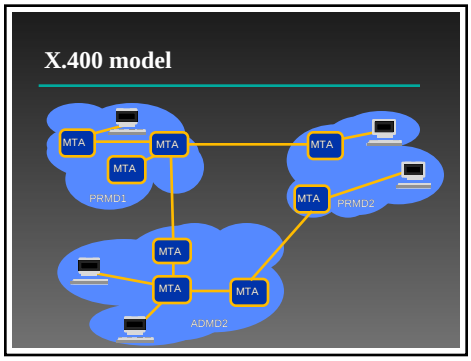
Apple OSI products

- MacX.400, MacX.400 SD, MacX25, MacODA and OSI Connection for Macintosh are all available from Apple Direct at 1-800-795 1000
- See OSI products presentation for more details about the other products


What is X.400?
A standard for mail and messaging
Based on the OSI model
A store and forward technology
Used by public and private institutions
Can run on OSI or TCP/IP transports
Part of the US GOSIP

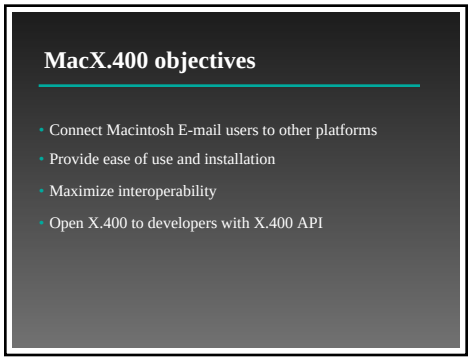
What is X.400?

- X.400 is the OSI standard for mail and messaging services. It is based on the OSI seven layer model and is a store and forward technology that is used by many public service providers and private institutions.
- X.400 can run on either OSI or TCP/IP transports and is part of the US GOSIP standard.



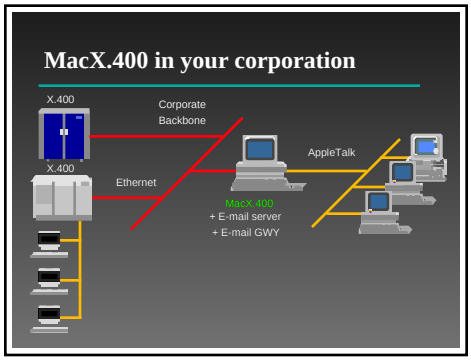
X.400 model

- Under the X.400 model mail programs are divided into two functions:
- - the user agents (UA) for users
- - the message transfer agent (MTA), i.e. the X.400 server
- These are grouped into either a private management domain (PRMD) or an administrative management domain (ADMD). PRMDs are privately owned X.400 networks (Apple is a PRMD) and ADMDs are public services, such as Sprint, MCI, and AT&T.
- The X.400 standard defines an extensible message frame that permits a rich variety of enclosure formats including text, binary, Fax, and custom enclosures.


MacX.400 objectives
Connect Macintosh E-mail users to other platforms
Provide ease of use and installation
Maximize interoperability
Open X.400 to developers with X.400 API

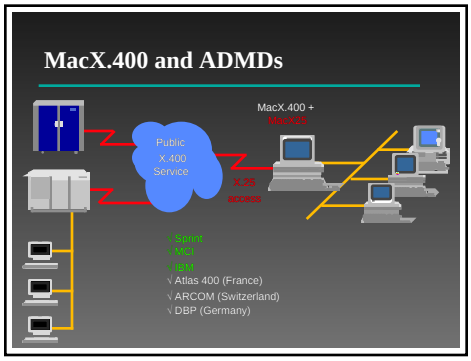
MacX.400 objectives

- MacX.400 is Apple's MessageTransfer Agent (MTA).
- MacX.400 is an integral part of Apple’s commitment to network connectivity and the OSI model.
- Apple is developing a fully conformant and fully interoperable 1984-X.400 product, which will allow you to integrate Macintosh computers into a wide range of host environments.
- A full OSI protocol stack is implemented in MacX.400. This lets you connect to either Ethernet LAN environments, using Transport Class 4, or using Apple MacX.25, you can gain access to X.25 networks.
- An Application Programming Interface (API) is available for MacX.400 so that developers can produce X.400 gateways, X.400 User Agents or other applications (such as EDI) for the Macintosh.



MacX.400 in your corporation

- The goal is to connect these islands of dissimilar E-mail in your corporation.
- **Network interfaces**: MacX.400 is connected to the X.400 backbone either over Ethernet or over X.25. AppleTalk connectivity to the clients can be on any of LocalTalk, Ethernet or Token Ring of course.
- In local area network (LAN) environments you can use a MacX.400 Server to access a private X.400 backbone inside a corporation using the Ethernet protocol stack.
- In this configuration Macintosh users on a LAN can send mail to users on other LANs via the server.
- Some companies use X.25 instead of Ethernet to support their X.400 backbone. This is mostly the case in the European and Pacific regions.
- **Software requirements:** MacX.400 runs on the same machine as the E-mail server and the E-mail gateway. This is a great competitive advantage over solutions from other vendors that require 2 or 3 CPUs to perform the same function.
- **Clients**: PCs are supported if the E-mail supports PC clients (like QuickMail). The yellow line on the right is an AppleTalk network



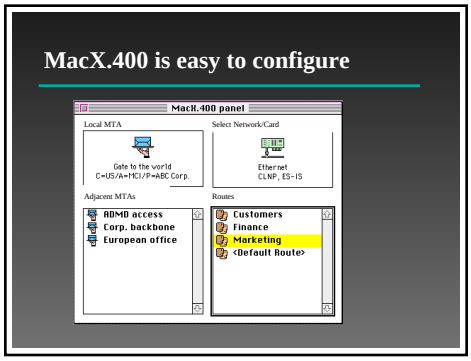
MacX.400 and ADMDs

- ADMD stands for Administrative Management Domain and means poublic X.400 provider.
- The MacX.400 Server allows any Macintosh user on a connected network to access public X.400 message services.
- Public X.400 message services are currently available from MCI, Sprint, AT&T, Infonet, GEIS, Pacific Bell in the US, and there is usually one ADMD in the other countries.
- Public X.400 message services are accessed using an X.25 line. They can convert X.400 messages to FAX and Telex. Therefore you can send E-mail to FAX machines or Telex terminals going through ADMDs.
- **Certification**: an X.400 product cannot be connected to an ADMD unless it has been certified with that ADMD first. The list of ADMDs for which MacX.400 is certified is shown on the slide. It will be expanded over time.

MacX.400 is easy to install
Would you rather pay a systems engineer for two days or press the button?
Welcome to Apple MacX.400
Your Macintosh needs certain software to use MacX.400 Services.
The Installer places this software in a folder called "MacX.400 Folder".
MacX.400
MacX.400 Folder
"Easy Install" chooses and installs the MacX.400 MTA software, and the MacX.400 Configuration application in the MacX.400 folder.
Use "Customize" if you would like to choose which software to install.
OK

MacX.400 is easy to install

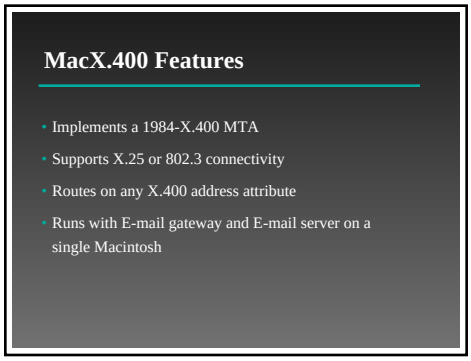
- One-button install as usual with Macintosh software. What a difference with X.400 software from other vendors that is usually sold with 2 days of a systems engineer!



MacX.400 is easy to configure

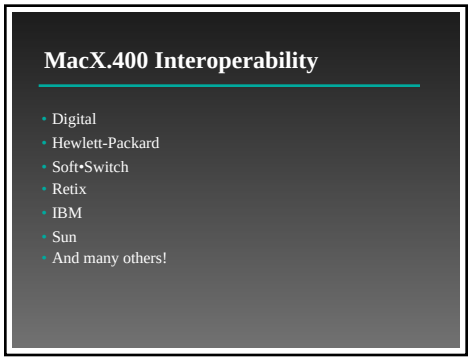
- Configuration is graphical and intuitive. Ther are 4 major parts in the configuration:

- the local MTA
- the adjacent MTAs (i.e. those MTAs MacX.400 is directly connected to)
- the network level (X.25 or Ethernet)
- the routes to reach remote recipients


MacX.400 Features
Implements a 1984-X.400 MTA
Supports X.25 or 802.3 connectivity
Routes on any X.400 address attribute
Runs with E-mail gateway and E-mail server on a single Macintosh

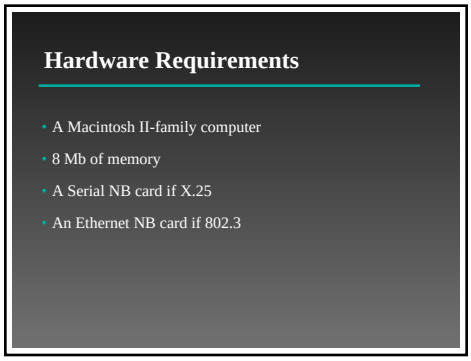
MacX.400 Features

- 1984-X.400 is 99% of the installed base today. Apple is also working on a version of MacX.400 based on 1988-X.400
- Apple is developing a fully conformant and fully interoperable 1984-X.400 product, which will allow you to integrate Macintosh computers into a wide range of host environments.
- A full OSI protocol stack is implemented in MacX.400. This lets you connect to either Ethernet LAN environments, using Transport Class 4, or using Apple MacX.25, you can gain access to X.25 networks.
- X.400 address attributes: country, ADMD, PRMD, Organization, Org Units 1 to 4, Surname, Given Name, Domain-Defined Attributes (DDAs)
- Example: c=US;a=TELEMAIL;p=Apple;o=ESD;s=PRABEL;g=Frank
- Apple is a PRMD (PRivate Management Domain)



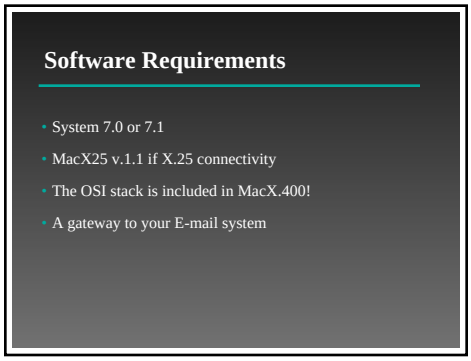
MacX.400 Interoperability

- Apple has invested a lot of time making sure that MacX.400 is interoprable with other X.400 servers. The resul is MacX.400 is one of the most interoperable X.400 servers on the market today.



Hardware Requirements

- MacX.400 only works with the Apple Ethernet NB card. No other Apple or third-aprty card is supported
- Built-in Ethernet on Quadras is not supported either. An Apple Ethernet NB card is required on Quadras
- The reason is the layers 1, 2 and 3 of the OSI software are downloaded on the card to improve performance.


Software Requirements
System 7.0 or 7.1
MacX25 v.1.1 if X.25 connectivity
The OSI stack is included in MacX.400!
A gateway to your E-mail system

Software Requirements

- Gateways are available from third parties such as InterCon and StarNine.
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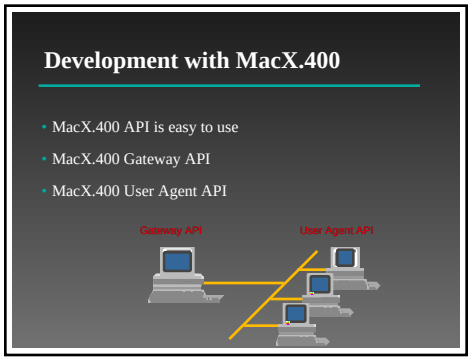
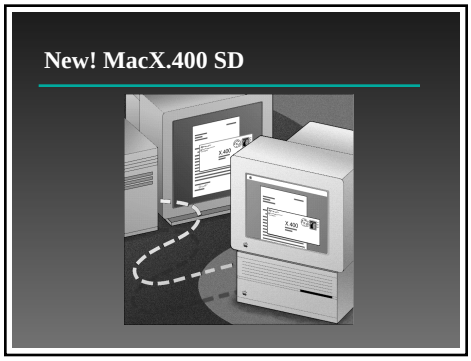


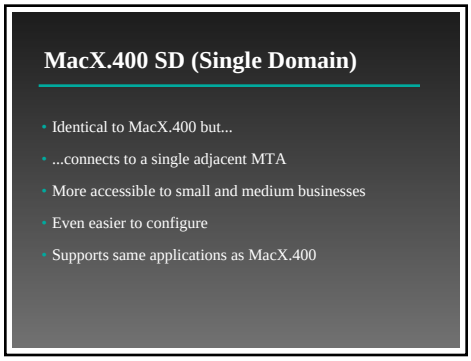
Development with MacX.400

- Developers have a variety of tools and options available.
- The MacX.400 API works in conjunction with the MacX.400 server and presents the hooks necessary for developers to build X.400 applications.
- The MacX.400 Programmer's kit includes the MacX.400 API software and the Programmer’s Guide. The MacX.400 Toolbox software lets the developer easily gain access to the Macintosh Communication Toolbox. The programmer’s guide helps developers to create efficient and reliable software.
- The MacX.400 Gateway API works with the MacX.400 server and is used to create custom gateways to existing E-mail server systems.
- Third-party developers can develop X.400 user agents that directly access the X.400 server to communicate in the X.400 environment.



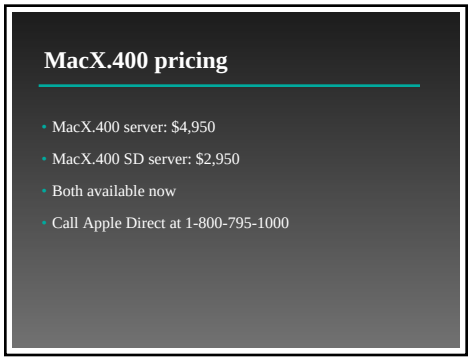
New! MacX.400 SD

- SD stands for Single Domain
- MacX.400 SD was introduced at Interop Fall, October 1992.


MacX.400 SD (Single Domain)
Identical to MacX.400 but...
...connects to a single adjacent MTA
More accessible to small and medium businesses
Even easier to configure
Supports same applications as MacX.400

MacX.400 SD (Single Domain)

- The OSI stack and the MTA are identical to those of MacX.400
- The only difference is in the MacX.400 config program: with MacX.400 SD, I can only define one adjacent MTA.
- MacX.400 supports up to 50 MTAs



MacX.400 pricing

- Developers have a variety of tools and options available.
- The MacX.400 Toolkit works in conjunction with the MacX.400 server and presents the hooks necessary for developers to build X.400 applications.
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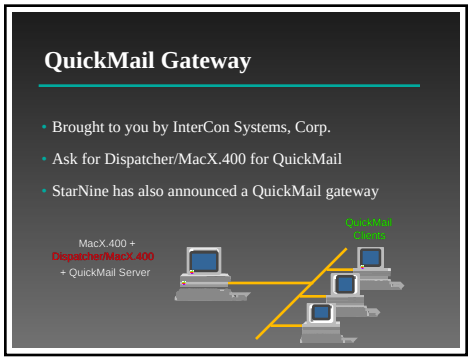
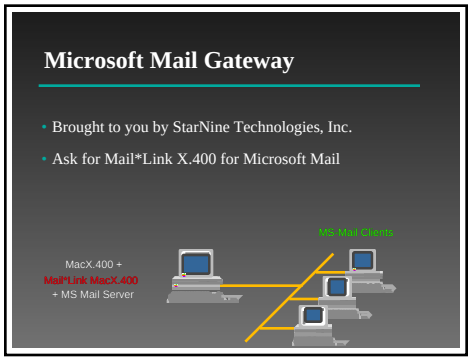
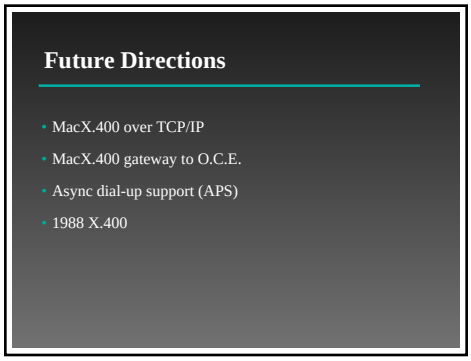


QuickMail Gateway


Microsoft Mail Gateway
Brought to you by StarNine Technologies, Inc.
Ask for Mail*Link X.400 for Microsoft Mail
MS Mail Clients
MacX.400 +
Mail*Link MacX 400
+ MS Mail Server

Microsoft Mail Gateway



Future Directions

- Apple will provide a MacX.400-OCE gateway after OCE ships.
- Apple OSI services will run over TCP/IP in the future through the XTI interface. The mapping of the OSI Transport on TCP is specified in the RFC 1006. this will help companies migrate from TCP/IP to the OSI environment. Step 1 is migration of the services (X.400, X.500) while preserving the infrastrucuture (the TCP/IP routers). Step 2 is migration of the infrastructure itself from TCP/IP to ISO TP4 including the routers.
- APS (Async Protocol Specification) is a specification put together by a set of vendors to support OSI services over dial-up modems and public PADs
- 1988 X.400 brings a lot of improvements over 1984 X.400. It supports richer message content. It works with X.500 Directory Service. It works on top of an 1988 OSI stack just like all other OSI services (1984 X.400 uses a specific1984 OSI stack.) 1988 X.400 products from other vendors will hit the market starting around 1993. Expect a 1988-X.400 product from Apple in the 1994 time frame.

The power to connect to the rest